



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,093	11/06/2003	Lutz Lohmann	38412-198025	8019
26694	7590	07/10/2008		
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20043-9998			EXAMINER REKSTAD, ERICK J	
			ART UNIT 2621	PAPER NUMBER
			MAIL DATE 07/10/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/702,093

**Applicant(s)**

LOHMANN, LUTZ

**Examiner**

ERICK REKSTAD

**Art Unit**

2621

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-16, 18-22, and 25-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This is a Final Rejection for application no. 10/702,093 in response to the amendment filed March 10, 2008.

#### ***Response to Arguments***

Applicant's arguments filed March 10, 2008 have been fully considered but they are not persuasive. The Applicant argues the prior art fails to disclose the claim limitation:

Means for checking the reference background with respect to non-homogeneity, wherein the reference background is rejected as non-valid only if the non-homogeneity detected within a predetermined variance distance falls below a predetermined level and the reference background is otherwise classified as valid.

The Examiner respectfully disagrees. Honeywell describes the use of the device to monitor security zones which is defined by a user (Page 23 Line 31- Page 24 Line 5). When a new reference image is captured, Honeywell teaches the determining if the reference image is valid (Page 26 Lines 3-11). Each security zone is provided a window analyzer for validating the reference image (Page 32 Lines 3-12). Honeywell further describes the selection of comparison mode based on if the reference image is valid (Page 32 Lines 13-16). This comparison mode is then used by the system to determine if objects have entered an area of interest (Page 30 Lines 4-6). This is viewed by the Examiner to satisfy the above claim limitation. Note, the Examiner views the system performing the operation of detecting the contrast between pixels within a window and determining if there is sufficient contrast for processing via contrast comparison algorithms as satisfying the claim limitation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 7-10, 37 and 38 are rejected under 35 U.S.C. 102(a) as being anticipated by International Publication WO 02/073086 A1 to Honeywell.

[claim 7]

As shown in Figure 3, Honeywell teaches a device for monitoring an area of coverage around a working tool. The device comprises a camera (10) and a computer unit (70) that is coupled to the camera and a switching output (74, 530 of Fig. 13). The switching output having means integrated into the computer for storing and classifying a reference background. The reference background is an image recorded with the camera of an object-free security zone within the area of coverage (Page 7 Lines 10-20, Page 16 Lines 10-19).

Honeywell further discloses a means for checking the reference background with respect to non-homogeneity, wherein the reference background is rejected as non-valid only if the non-homogeneity detected within a predetermined variance distance falls below a predetermined level and the reference background is otherwise classified as valid (Page 26 Lines 3-11, Page 30 Lines 4-6 and Page 3-16). Note, it is viewed by the Examiner that the means of Honeywell inherently contains a predetermined level as Honeywell selects the mode based on the contrast level.

The device further comprises the means integrated into the computer for releasing an object detection system in dependence on the classification of the reference background (Page 21 Lines 25-28 and Page 22 Lines 12-27, Fig. 17).

The device further comprises the means integrated into the computer for comparing actual images of the security zone, recorded with the camera and a reference background classified as valid. A detection of a safety-critical object within the security zone occurs if the actual image differs significantly from the reference background and wherein the working tool is activated via the switching output that is triggered by the computer unit, but only if no safety-critical object is located within the security zone (Page 8 Lines 12-20, Page 13 Lines 15-18 and Page 13 Line 31-Page 14 Line 2, Page 14 Lines 15-21).

[claims 8 and 9]

As shown in Figure 17, Honeywell teaches the use of a binary control signal having switching states of which indicate whether the existing reference background is classified as value or non-valid (Page 21 Lines 25-31, Page 22 Lines 12-19). Figure 17 further shows the object detection system is released or blocked in dependence on the switching states of the binary control signal (Page 22 Lines 15-27).

[claim 10]

Honeywell further teaches the output via an indicator output that is coupled to the computer unit (Page 7 Lines 21-25, Page 16 Lines 10-19).

[claims 37 and 38]

Honeywell teaches the safety-critical objects are persons or arms of a person (Page 6 Line 7, Page 19 Lines 4-8, Fig. 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11- 16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over International Publication WO 02/073086 A1 to Honeywell as applied to claim 10, in further view of US Patent 3,010,024 to Barnett et al.  
[claim 11]

As shown above Honeywell teaches the requirements of claim 10 (Figs. 3 and 17). Honeywell is silent on the use of two cameras which form a redundant camera system using a beam divider.

As shown in Figures 1 and 2, Barnett teaches a detection system using a beam divider (28) in addition to two cameras (10 and 11) to provide a redundant system (Col 3 Lines 55-60 and Lines 70-74, Col 4 Lines 15-21 and Line 55-71, Col 5 Lines 5-53). Barnett teaches the benefit of the system is that it provides an accurate and rapid means for detecting and tracking high speed moving objects (Col 1 Lines 9-12 and Lines 16-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

Art Unit: 2621

[claim 12]

As shown above for claim 11, Barnett teaches each camera has an associated independent computer unit (Col 1 Line 71-Col 2 Line 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claims 13 and 14]

As shown for claims 7 and 10, Honeywell teaches the system provides a switching output and indicator output. As shown for the rejection of claim 11, it would have been obvious to modify the system of Honeywell with the multiple processing units of Barnett in order to provide an accurate and rapid means for detecting. Since the modification would only modify the processing such as the process 790 of Figure 17, the system as a whole still actuates the switching output and activates the indicator output. Thus the switching and indicator outputs are controlled by both computer units.

[claim 15]

Barnett further teaches the cameras are identical or at least operate in the same way (Col 3 Lines 70-75). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claim 16]

As shown in Figures 1 and 2, Barnett teaches the two computer units have identical hardware structures (Col 4 Line 40-Col 5 Line 75). It would have been obvious

Art Unit: 2621

to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claim 18]

Barnett further teaches each computing unit stores the reference background (Col 5 Lines 5-37). Note, the differential amplifiers subtract the background from the video signal, thus the reference background is stored long enough to perform this action. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claim 19]

As shown above for claim 8, the system of Honeywell provides the ability to release the object detection system via the binary control signal (Page 22 Lines 15-27, Fig. 17). Further, as shown for claim 11, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting. Since the modification would only modify the processing such as the process 790 of Figure 17, the system as a whole still actuates the switching output. Thus, the binary control signal releases the object detection system only if the reference background in both computer units is classified as valid.

[claims 20-22]

Barnett further teaches the comparison is made between the images actually recorded with the cameras and the reference background is stored in the computer units (Col 5 Lines 5-17). Image characteristics are obtained for the image information that is input (Col 5 lines 13-42). The image characteristics determined in the two computer units are compared via the connection between the two computer units (Col 6 Lines 20-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

Claims 25-36 rejected under 35 U.S.C. 103(a) as being unpatentable over International Publication WO 02/073086 A1 to Honeywell as applied to claim 7, in view of US Patent Application Publication 2001/0041077 A1 to Lehner et al.  
[claim 25]

As shown above, Honeywell teaches the requirements of claim 7. Honeywell does not teach the use of a warning zone in addition to the security zone.

As shown in Figure 3, Lehner teaches the use of a warning zone (8) in addition to the security zone (7) (Paragraphs [0051]-[0052]). Lehner further teaches a warning indicator is activated via a warning output if a safety-critical object is located in the warning zone (Paragraphs [0052]-[0054]). Lehner teaches the benefit of a warning zone is to warn a user before entering a security zone (Paragraph [0053]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell with the warning zone of Lehner in order to warn a

user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claim 26]

As shown in Figure 3, the warning zone (8) is adjacent to the security zone (7) (Paragraph [0051]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claim 27]

Lehner further teaches the reference background comprises the security zone and the warning zone (Paragraph [0039], [0050], and [0081]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claims 28 and 29]

Lehner further teaches the detection of the movement direction of the safety-critical object within the warning zone can be detected and the warning indicator is activated only if a safety-critical object is located within the warning zone and moves towards the security zone (Paragraph [0054]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

Art Unit: 2621

[claims 30 and 31]

Lehner further teaches several security zones and warning zones are respectively provided, wherein tone switching output is assigned respectively to a respective security zone and a warning output is assigned to each respective warning zone (Paragraph [0055]). Lehner further teaches shutting down the working tool if a safety-critical object is located in at least one security zone (Paragraph [0056]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claims 32-38]

Honeywell teaches the working tool may be hazardous equipment, raw materials processors, or any other machine that could present a danger to a person (Page 5 Line 32-Page 6 Line 9). Honeywell is silent on the working tool being a robot, printing machine, feeding device, press or folding press.

Lehner teaches the working tool is a robot (Paragraph [0034]). Lehner further teaches the working tool is a printing machine (Paragraph [0031]). Lehner further teaches the working tool is a folding press, thus satisfying the requirements of claim 35 and 36 (Paragraph [0002]). Lehner teaches the press is feed by the operator thus satisfying the requirements for a feeding device (Paragraph [0037]).

***Allowable Subject Matter***

Claims 17, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERICK REKSTAD whose telephone number is (571)272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone

Art Unit: 2621

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. R./  
Examiner, Art Unit 2621

/Gims S Philippe/  
Primary Examiner, Art Unit 2621